PMD139

USING REAL-WORLD HOSPITAL PURCHASING AND CONSUMPTION DATA TO IMPROVE HEALTHCARE SYSTEMS EFFICIENCIES

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OBJECTIVES: Presently, there is a disparity between the purchasing power of various hospital institutions within Germany. Large institutions, those within hospital networks, and those with group purchasing organization (GPO) memberships can leverage their influence to secure favorable prices for medical devices and consumables. Other institutions, however, are not able to leverage the same purchasing power, resulting in higher prices and financial inefficiencies. The objective of this work was to measure the financial impact to a broad spectrum of hospitals using real-world German hospital purchasing and consumption data. **METHODS:** GfK Hospital Panel, a proprietary database for German hospital medical devices and consumables purchasing and consumption was evaluated. Wound care purchasing data was evaluated to see similarities and differences in purchasing volume, acquisition cost, and product utilization. Products used to promote infection control and healing in post-surgical sites were prioritized. **RESULTS:** The hospital purchasing and consumption data identified how specific products were used within and across hospitals. Differences in consumption by specialty department/units show how purchasing decisions are being concentrated in different settings. Hospitals with greater buying power and those with access to group purchasing organizations paid less per unit price than other hospitals, however the mix of products used varied by setting. Advanced wound care products had the greatest variability in usage among hospitals within the sample. **CONCLUSIONS:** Databases that provide detailed hospital purchasing data provide greater transparency to both hospitals and innovators on purchasing, pricing, and utilization trends. Smaller hospitals and those independently negotiating purchasing contracts can leverage this information to understand practice in other hospital settings as they make decisions for their own. These data are likely to have a significant impact in rationalizing expenditures across the German Healthcare System, providing transparency to help hospitals make better purchasing decisions.

PMD140

ECONOMIC ANALYSIS OF EVICEL® COMPARED WITH STANDARD OF CARE FOR DURAL CLOSURE IN ELECTIVE CRANIAL SURGERY: A UNITED KINGDOM HOSPITAL PERSPECTIVE

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OBJECTIVES: Intraoperative watertight dural closure is critical as CSF leakage can lead to an increased risk of costly clinical consequences (e.g., wound infection, meningitis). Although there are several fibrin sealants available, not all are indicated for sealing dura mater. An economic analysis compared a fibrin sealant (EVICEL® Solutions for Sealant) with standard of care (SoC) for sutured dural closure in cranial surgery in the United Kingdom (UK). **METHODS:** The economic analysis quantified the 30-day cost impact of EVICEL® from a U.K. hospital perspective based on a surgical approach using clinical trial data. SoC was composed of sutures in addition to rescue therapy for the majority of the population. Trial-reported resources used included the quantity of initial treatment, adjunctive and rescue therapy product utilization, operating room (OR) time, hospitalization duration, and risk of dural-related adverse events. Only SoC treatment successes were allowed to receive additional adjunctive therapies to ensure durability of closure; however, treatment failures in both Evicel® and SoC could receive rescue therapies. Adjunctive therapies consisted of sutures, collagen, and haemostats (not fibrin sealants); where as rescue therapies consisted of various glues, haemostats and autologous dural patches. Published data on U.K. costs were applied to resource use and several one-way sensitivity analyses were conducted. **RESULTS:** The analysis estimated that resource savings with EVICEL® completely offset its acquisition cost and resulted in cost savings of £207 per patient (sensitivity range: -£727.02 to £313.40) compared with SoC. Results remained robust to the majority of sensitivity analyses; however were most sensitive to assumptions regarding OR time and hospitalization duration. **CONCLUSIONS:** The use of EVICEL® for suture line dural closure may result in important cost savings for hospitals, partly driven by the reduced need for other adjunctive and rescue therapies. Further studies in larger populations may help to substantiate findings.

PMD141

MODELLED U.K. AND U.S. ANALYSES DEMONSTRATE SHERLOCK 3CG® TIP CONFIRMATION SYSTEM FOR PERIPHERALLY INSERTED CENTRAL CATHETER PLACEMENT IS ASSOCIATED WITH FAVOURABLE HEALTH ECONOMIC OUTCOMES

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OBJECTIVES: The Sherlock 3CG® Tip Confirmation System (TCS) is designed to confirm the correct tip placement of a peripherally inserted central catheter (PICC) by using magnetic real-time tracking and electrocardiographic catheter tip confirmation. The National Institute for Health and Care Excellence (NICE) recommended the adoption of Sherlock 3CG® TCS based on modelled health economic benefits in the United Kingdom (U.K.). The objective of this study was to develop a United States (U.S.) model for Sherlock 3CG® TCS and compare these results to the U.K. analyses. **METHODS:** Sherlock 3CG® TCS was compared with "blind" beside PICC placement, as well as region-specific PICC placement methods (i.e., fluoroscopy in the U.K. and tip location system (TLS) in the U.S.). Clinical and economic outcomes were assessed per patient over the duration of a successful PICC insertion procedure. All eligible patients with an identifiable P-wave in their ECG rhythm were assumed to switch to Sherlock 3CG® TCS and did not require confirmatory chest x-rays. PICC placement success rates, as well as region-specific costs for capital, maintenance, nurse training, consumable materials, and chest x-rays were included. Parameters and assumptions were based on the NICE/External Assessment Centre report and published literature when possible. **RESULTS:** Adoption of Sherlock 3CG® TCS was predicted to be more or less cost neutral per patient when compared with "blind" bedside in both the U.K. (£9.37) and the U.S. ($18.73). Further, Sherlock 3CG® TCS was predicted to be cost-saving per patient compared with fluoroscopy in the U.K. (-£106.12) or compared with a TLS in the U.S. (-$18.43). These results were robust to the majority of sensitivity analyses. **CONCLUSIONS:** This study predicts that Sherlock 3CG® TCS is an economically favorable strategy from both U.K. and U.S. perspectives and can provide additional patient and healthcare worker benefits. Additional analyses in other regions may help to further substantiate these results.

PMD142

ECONOMIC ANALYSIS OF EVARREST® SEALANT MATRIX COMPARED WITH STANDARD OF CARE IN SEVERE SOFT TISSUE SURGICAL BLEEDING: A GERMAN HOSPITAL PERSPECTIVE

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OBJECTIVES: Although several hemostats are available, drawbacks include limitations with efficacy and ease-of-use. Despite their use, uncontrolled bleeding still remains common and is associated with important clinical and economic burden. A study was conducted to estimate the economic impact of a novel fibrin sealant matrix (EVARREST®) versus standard of care (SoC) in problematic severe soft tissue surgical bleeding in Germany. **METHODS:** An economic model quantified 30-day cost impact of EVARREST® from a German hospital perspective. Severe soft tissue bleeding trial resources included quantity of initial treatment, re-treatment, surgery time, transfusion risk, amount transfused, and hospitalization (including ICU and ward stay). SoC was composed of Surgicel® (88%) and conventional methods (e.g., manual compression). The surgical analysis included resources clinically related to the significant hemostasis benefit of EVARREST®vs. SoC (i.e., initial and re-treatment, operating time, transfusion). A hospital analysis included all resources collected. Published data on German costs were applied to resource use. A subgroup analysis was conducted for patients meeting coagulopathic criteria based on abnormal values for at least one of the trial coagulation parameters collected. Value-added tax (19%) was added to product costs. **RESULTS:** The surgical base-case analysis predicted that EVARREST® cost was offset by averted resource use with per patient cost impact of €1,893 vs. SoC. The hospital analysis predicts further resource reduction with EVARREST® leading to cost impact of €608 per patient. In coagulopathic patients, the results dramatically improved, with the surgical and hospital analysis both showing cost-savings of €542 and €3,275 with EVARREST®vs. SoC respectively. **CONCLUSIONS:** In problematic bleeding situations, EVARREST® may result in important cost savings for hospitals, in addition to meeting an important unmet need. This analysis suggests results may depend on surgical bleeding type, with increased benefit seen in challenging (i.e., coagulopathic) bleeding patients. Further study is needed to confirm findings.

PMD143

ECONOMIC ANALYSIS OF EVARREST® SEALANT MATRIX COMPARED WITH STANDARD OF CARE IN SEVERE SOFT TISSUE SURGICAL BLEEDING: AN ITALIAN HOSPITAL PERSPECTIVE

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OBJECTIVES: Although several hemostats are available, drawbacks include limitations with efficacy and ease-of-use. Despite their use, uncontrolled bleeding still remains common and is associated with important clinical and economic burden. A study was conducted to estimate the economic impact of a novel fibrin sealant matrix (EVARREST®) versus standard of care (SoC) in problematic severe soft tissue surgical bleeding in Italy. **METHODS:** An economic model quantified 30-day cost impact of EVARREST® from an Italian hospital perspective. Severe soft tissue bleeding trial resources included quantity of initial treatment, re-treatment, surgery time, transfusion risk, amount transfused, and hospitalization (including ICU and ward stay). SoC was composed of Surgicel® (88%) and conventional methods (e.g., manual compression). The surgical analysis included resources clinically related to the significant hemostasis benefit of EVARREST®vs. SoC (i.e., initial and re-treatment, operating time, transfusion). A hospital analysis included all resources collected. Published data on Italian costs were applied to resource use. A subgroup analysis was conducted for patients meeting coagulopathic criteria based on abnormal values for at least one of the trial coagulation parameters collected. **RESULTS:** The surgical base-case analysis predicted that EVARREST® cost was offset by averted resource use with per patient cost impact of €1,016 vs. SoC. The hospital analysis predicts further resource reduction with EVARREST® leading to cost-savings of €708 per patient. In coagulopathic patients, the results dramatically improved, with the surgical and hospital analysis both showing cost-savings of €2,366 and €6,128, with EVARREST®vs. SoC respectively. **CONCLUSIONS:** In problematic bleeding situations, EVARREST® may result in important cost savings for hospitals, in addition to meeting an important unmet need. This analysis suggests results may depend on surgical bleeding type, with increased benefit seen in challenging (i.e., coagulopathic) bleeding patients. Further study is needed to confirm findings.

PMD144

ECONOMIC JUSTIFICATION OF TELEMEDICINE TECHNOLOGY FOR PREVENTIVE MEDICAL EXAMINATION OF THE POPULATION IN REMOTE REGIONS IN RUSSIA

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OBJECTIVES: economic analysis of telemedical technologies application for regular medical examination among the adult population living far from hospitals in the

Khanty-Mansi Autonomous Okrug – Yugra. **METHODS:** The study consisted of three steps: 1. Analysis of the population structure in the study region with selection of patients group who can not pass medical examinations in hospitals. 2. Determination of equipment needed for the1st stage clinical examination for entire region population. 3. Development of economic model to evaluate implementation of telemedical technologies for regular medical examination among the adult population living far from hospitals. The decision tree model compared two strategies for the clinical examination of patients: 1) with telemedicine complex, when physicians come to patient and 2) without telemedicine complex, when patient have to visit hospitals themselves. Sensitivity analysis was performed to analyze changes in the results when the duration of use of telemedicine equipment (time horizon) was varied. **RESULTS:** One-time costs of telemedicine complex was € 1,44 million. The amount of spending for the telemedicine complex strategy was € 65,08 million for 3 years. The cost of strategy without telemedicine complex was € 62,27 million for the same time period. The difference between strategies amounted € 4,24 million. Investments in the acquisition of telemedicine complex are payed off in 1.02 years. **CONCLUSIONS:** Application of the telemedical complexallows to compensate acquisition costs in less than one and a half years and improves access to medical care for handicapped and remoted population of Khanty-Mansi Autonomous Okrug – Yugra.

PMD145

ADOPTION OF TRANSCATHETER AORTIC VALVE REPLACEMENT IN GERMANY: UTILIZATION PATTERNS AND CASE VOLUMES COMPARED TO SURGICAL AORTIC VALVE REPLACEMENT IN THE PERIOD 2009-2013

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OBJECTIVES: The German healthcare system was among the first markets to introduce transcatheter aortic valve replacement (TAVR) in routine care. Our objective was to estimate the impact of TAVR availability on overall aortic valve replacement volumes and competing therapies in this real-world setting. **METHODS:** Therapy- and age-specific procedure volumes were collected from German Federal Statistics Office databases for TAVR and surgical aortic valve replacement (SAVR) via sternotomy for years 2009 through 2013. Discharge and hospital-based mortality data were obtained for the same period based on applicable ICD-10 diagnosis. We computed therapy-specific and total procedure volumes and growth stratified by 5-year age increments and in total. Discharge and mortality data for aortic valve disease hospitalizations was assessed to obtain an estimate of changes in per-case mortality. **RESULTS:** In the time period 2009 to 2013 overall procedure volumes grew from 26,466 to 33,235 (+26%). This growth was driven by TAVR (3,411 to 10,814; +217%), while SAVR volumes remained stable (23,055 to 22,421; -3%). In patients 75 years or older, an overall procedure growth of 51% was observed (12,168 to 18,318), with volumes in older patient segments growing more heavily (+62% in >80-year olds; +101% in >85-year olds). Across all elderly age groups, SAVR volumes decreased (-20% in >80 year olds; -37% in >85 year olds), while they grew in selected younger patients groups (highest growth +30% in age group 60-64 yrs.). Concurrently, total aortic valve disease hospital discharges grew by 26%, from 44,161 to 55,748, while mortality per hospitalization case decreased by 5% between 2009 and 2013. **CONCLUSIONS:** The availability of TAVR has contributed to substantial growth in aortic valve replacements in Germany, specifically in elderly populations previously left untreated. This growth was associated with a concurrent gradual decline in overall mortality of aortic valve-related hospitalizations.

PMD146

MULTI EUROPEAN COUNTRY COST CONSEQUENCE COMPARISON OF FLOSEAL MATRIX AND SURGIFLO THROMBIN IN MAJOR AND SEVERE SPINE SURGERIES

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OBJECTIVES: A recently published retrospective analysis of the US Premier database showed that in major spine surgeries (MSS; e.g., fusion/refusion 2-3 vertebrae), the hemostatic agent Floseal reduces operative room (OR) time by 8.84 min ($p<0.0001$), transfusion rate by 0.2% ($p<0.0001$) and product volume by 3.35 mL ($p<0.001$) versus Surgiflo Thrombin. In severe spine surgeries (SSS, e.g. fusion/refusion 4+ vertebrae), Floseal reduces OR time by 26.94 min ($p<0.001$) and product volume by 1.52 mL ($p<0.008$) versus Surgiflo Thrombin. This analysis was undertaken to evaluate the cost-consequences of using Floseal versus Surgiflo Thrombin in spine procedures in 4 European countries. **METHODS:** A cost-consequence model (hospital perspective) was built in Excel using the outcomes from the retrospective study: OR time, blood transfusion (assumption: 2 units per patient transfused) rates, product volume used. Unit costs were obtained for France, United Kingdom (UK), Germany and the Netherlands (NL) from official national sources or published literature. An annual case load of 1,000 MSS and 1,000 SSS per year was assumed. Monte-Carlo simulation was used to account for parameter uncertainty using the 95% confidence interval or ± 20%. **RESULTS:** Floseal could lead to net annual **savings versus Surgiflo Thrombin ranging from 56,000€ (Germany) to 344,000€ (NL) for the 1,000 MSS case load and from 179,000€ (Germany) to 540,000€ (UK) for SSS. Monte-Carlo simulations showed that savings are >100€ per MSS and >200€ per SSS in 82 to 99% of iterations in UK and NL. That level of net savings is reached in a smaller number of iterations in other countries (e.g., 45-60% in France, 24-43% in Germany)**. **CONCLUSIONS:** This analysis indicates that using Floseal instead of Surgiflo Thrombin as adjunct to hemostasis in MSS and SSS could lead to sizable cost savings to hospitals, and that the importance of the savings is dependent on the country.

PMD147

POTENTIAL ECONOMIC IMPACT OF INHALATION ERRORS DUE TO DEVICE SWITCH IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ASTHMA

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OBJECTIVES: As different inhalation devices require largely different techniques of use, the non-trained switch of device in chronic obstructive pulmonary disease (COPD) and asthma patients may be associated with a poor inhalation technique and, consequently, in a reduction of adherence and worsening in pathology control. Aim of this analysis is to estimate the possible economic impact on Italian National Health Service (INHS) related to errors in inhalation in patients switching device without adequate training. **METHODS:** An Italian observational study on patients with COPD and asthma, highlights higher healthcare resource consumption associated with inhaler mishandling. Particularly, significantly higher rates of hospitalizations, emergency room (ER) access and pharmacological treatment (steroids and antimicrobials) were observed. These differences in resource consumption were monetized from the INHS perspective considering national DRGs tariffs for hospitalizations and ER access and public price for drugs consumption. **RESULTS:** Comparing a population of 100 COPD patients with at least a critical error in inhalation with 100 COPD patients without errors in inhalation, the first population is associated with an excess of 11.5 hospitalizations, 13 ER access, 19.5 antimicrobial courses and 47 corticosteroids courses. In the same way, if we compare 100 asthma patients with at least a critical error in inhalation with 100 asthma patients without errors in inhalation, the first population is associated with an excess of 19 hospitalizations, 26.5 ER access, 4.5 antimicrobial courses and 21.5 corticosteroids courses. These differences in resource consumption are associated with an yearly incremental cost for 100 patients, due to inhalation errors, of 23,444€ in COPD patients and 44,104€ in asthma. **CONCLUSIONS:** This evaluation shows that misuse of inhalation devices, possibly associated to inadequate training or non-consented switch of inhaled medications, is associated with a decrease in disease control and an increase in healthcare resource consumption and costs in COPD and asthma patients.

PMD148

TURKISH REIMBURSEMENT SYSTEM FOR MEDICAL DEVICES

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OBJECTIVES: Objective of this study is to elaborate on the Turkish medical devices (MDs) reimbursement system. **METHODS:** Health Implementation Communiqué (SUT), MD Reimbursement Guidelines and National Data Bank of Medicines and MDs (TITUBB) are analyzed. **RESULTS:** Ministry of Health (MoH) is responsible for medicines' and MDs' registration, while Social Security Institution (SSI) is the payer and the decision-maker for reimbursement rules; defined by SUT. Holding CE-mark and MoH approval are prerequisites for reimbursement. All MDs are subject to generic listing: there are specialty-based positive lists, consisting of generic definitions and codes with corresponding ceiling reimbursement prices set by SSI. For inclusion into the positive lists, the manufacturer/distributor has to submit a "reimbursement dossier" to SSI. According to the "Application Guideline" published in May 2014, the content and level of evidence requirements for dossiers depend on the application type: For a new code or a new title creation, health-economics and clinical evidence are required. For matching to an existing code and applying for minor technical changes like barcode and label name of a product basic clinical data and MoH approval is sufficient. However C and D type are not processed currently due to existing TITUBB, joint data bank of MoH and SSI, allowing manufacturers to match products to existing SUT codes manually. A new system is planned to be launched which will not allow manual reimbursement approval and all code-matchings will be evaluated by SSI with respect to above-mentioned Guideline. As neither the timeline for new system activation nor the evaluation criteria of dossiers are clearly determined, reimbursement evaluation processes are not fully-transparent and predictable. **CONCLUSIONS:** MD reimbursement decisions are limited to basic safety, efficacy and clinical evidence. Due to existing generic listing practice, quality- or brand-based differentiation in reimbursement is not applied and price-differentiation for innovative and high-quality products does not prevail.

PMD149

MEDICAL DEVICES – BREST FORMS. COST AND QUANTITY CHARACTERISTICS OF MEDICAL DEVICES IN SLOVAKIA 2009 – 2013

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OBJECTIVES: Reconstruction techniques after a mastectomy have improved greatly in recent years, with much more natural results. Even so, a third of women choose not to have reconstruction. They turn to breast forms medical devices (MDBF). MDBF are reimbursed from Health insurance funds, but for MDBF with higher functional properties, there is a presence of higher patient co-payment. **METHODS:** The target of the work was to analyse the data from paid databases of Slovak authority National Center for Health Information that collects the outputs of provided health care. The data were focused on totally or partly reimbursed medical devices (MD) from public health insurance funds. The selected group was medical devices for people after mastectomy – Brest forms. The most recent data were from 1.1. 2009 - 31.12. 2013. It was used basic and advanced statistic processing by Microsoft Excel. RESULTS: Referring to the National Center for Health Information, in the observed period, the share of MDBF on total consumption of MD stagnated (MDBF/MD2009=0.0039%; MDBF/MD2013=0.0038%; ΔMDBF/MD2009-2013=-0.0001%). The total quantitative consumption MDBF increased (Δ2009-2013=458pcs/14.16%; max2013=4 101pcs; min2009=3 235pcs; AVG=3 693pcs; Mean=3 685pcs; SD=333). The share of MDBF on total reimbursement of MD stagnated (MDBF/MD2009=0.14%; MDBF/MD2013=0.12%; ΔMDBF/MD2009-2013=-0.02%). The total reimbursement in the observed period increased (Δ2009-2013=12 174€/6.93%; max2013=187 736€; min2009=175 562€; AVG=179 050€; Mean=179 554€; SD=5 651). The share of MDBF on the patient supplements of MD stagnated (MDBF/MD2009=0.27%; MDBF/MD2013=0.23%; ΔMDBF/MD2009-2013=-0.04%). The total patient supplements increased (Δ2009-2013=3 700€/43.36%; max2013=12 234€; min2009=8 534€; AVG=11 637€; Mean=12 234€; SD=1 835). CONCLUSIONS: Development of MDBF costs is almost stable. MDBF has a higher patient co-payment. This fact is due to the current legislation when more